

## ABSTRACT OF THE DISCLOSURE

An automatic tissue processor for processing tissue samples for histological analysis. The tissue processor in one configuration includes a retort chamber, a wax storage chamber holding multiple wax containers, a reagent storage chamber holding multiple reagent containers, and a fluid transporting system including a rotary valve operated by a Maltese Cross gear, for selectively connecting the retort chamber with a particular wax or reagent container to supply wax or reagents to the retort chamber. Differential heating of the wax chamber is accommodated by multiple heating elements, with indirect heating of the rotary valve and the fluid transporting system. A computerized central control system for automatic monitoring and control of such tissue processor is advantageously arranged to execute a reagent management program, which enables the central control system to automatically manage reagent usage and replacement.